

**WHAT IS CLAIMED IS:**

1        1. For use in a radio access network of a telecommunications system, the radio  
2 access network including a first radio network control node and a second radio network  
3 control node, a method comprising using an end-to-end signaling protocol to establish  
4 at least node-transcending ones of plural distinct connection segments comprising a  
5 radio connection involving a user equipment unit, the plural distinct connection  
6 segments extending in series between a device in the first radio network control node  
7 and a base station controlled by the second radio network control node, the first radio  
8 network control node serving as a serving radio network control (SRNC) node and the  
9 second radio network control serving as a drift radio network control (DRNC) node for  
10 the radio connection with the user equipment unit.

1        2. The method of claim 1, further comprising using AAL2 signaling as the end-  
2 to-end signaling protocol.

1        3. The method of claim 1, wherein an establish confirm message of the end-to-  
2 end protocol is not received at the first radio network control node until a user plane has  
3 been set up for all of the plural connection segments.

1        4. The method of claim 1, further comprising establishing at least one of the  
2 plural distinct connection segments between the base station controlled by the second  
3 radio network control node and a device at the second radio network control node.

1        5. The method of claim 4, further comprising:  
2              performing a SRNC relocation procedure to make the second radio network  
3 control node serve as the SRNC for the radio connection involving the user equipment  
4 unit; and thereafter still  
5              using a retained one of the at least one of the plural distinct connection segments  
6 between the base station controlled by the second radio network control node and the  
7 device at the second radio network control node to comprise the radio connection with  
8 the user equipment unit.

1        6. The method of claim 5, further comprising using the retained one of the  
2 plural distinct connection segments in series with a post-relocation connection segment

3 to establish a path between the base station controlled by the second radio network  
4 control node and a diversity handover unit at the second radio network control node.

1 7. The method of claim 5, further comprising moving an endpoint of the  
2 retained one of the plural distinct connection segments to a diversity handover unit at  
3 the second radio network control node.

1 8. The method of claim 4, further comprising:

2 (1) establishing, as one of the plural distinct connection segments, a connection  
3 segment between a first device at the second radio network control node and the base  
4 station controlled by the second radio network control node;

5 (2) establishing, as another of the plural distinct connection segments, a  
6 connection segment between the first device at the second radio network control node  
7 and a second device at the second radio network control node.

1 9. The method of claim 8, further comprising:

2 (3) establishing, as yet another of the plural distinct connection segments, a  
3 connection segment between the second device at the second radio network control  
4 node and the device at the first radio network control node.

1 10. The method of claim 8, wherein the first device is a first connection point  
2 and the second device is a second connection point.

1 11. The method of claim 10, wherein the first device is a first extension terminal  
2 and the second device is a second extension terminal, and wherein the connection  
3 segment of step (1) extends through a switch at the second radio network control node.

1 12. The method of claim 8, further comprising:

2 performing a SRNC relocation procedure to make the second radio network  
3 control node serve as the SRNC for the radio connection involving the user equipment  
4 unit; and thereafter

5 retaining the connection segment established by step (1) to comprise the radio  
6 connection with the user equipment unit.

1        13. The method of claim 12, further comprising, subsequent to performance of  
2 the SRNC relocation procedure, using the connection segment established by step (1) in  
3 series with a post-relocation connection segment to establish a path between the base  
4 station controlled by the second radio network control node and a diversity handover  
5 unit at the second radio network control node.

1        14. The method of claim 1, further comprising:

2            (A) establishing, as a retainable one of the plural distinct connection segments, a  
3 connection segment between a device at the second radio network control node and the  
4 base station controlled by the second radio network control node.

1        15. The method of claim 14, further comprising:

2            (B) establishing, as another of the plural distinct connection segments, a  
3 connection segment between the device at the second radio network control node and  
4 the device at the first radio network control node.

1        16. The method of claim 14, wherein the device at the second radio network  
2 control node is a connection point situated between a switch of the second radio  
3 network control node and a link to the first radio network control node.

1        17. The method of claim 14, wherein the device at the second radio network  
2 control node is an extension terminal.

1        18. The method of claim 14, further comprising:

2            performing a SRNC relocation procedure to make the second radio network  
3 control node serve as the SRNC for the radio connection involving the user equipment  
4 unit; and thereafter

5            using the retainable one of the connection segments established by step (A) to  
6 comprise the radio connection with the user equipment unit.

1        19. The method of claim 18, further comprising, as part of the SRNC relocation  
2 procedure, moving an endpoint of the retainable one of the plural distinct connection  
3 segments to a diversity handover unit at the second radio network control node.

1        20. The method of claim 1, wherein the node-transcending one of the plural  
2 distinct connection segments has a connection point at a given node, the given node  
3 being one of the first radio network control node, the second radio network control  
4 node, and the base station, wherein the given node has a call control process in a call  
5 layer which is separated from a connection control process in a connection layer, and  
6 wherein the method further comprises the call layer control process obtaining a binding  
7 reference to represent the connection point.

1        21. The method of claim 20, wherein the binding reference is in a predetermined  
2 range which is reserved for setting up AAL2 connections to connection points.

1        22. The method of claim 21, wherein the binding reference is a Served User  
2 Generated Reference (SUGR).

1        23. The method of claim 20, wherein the binding reference is associated in a  
2 table with a predetermined value which denotes a connection point value.

1        24. The method of claim 20, wherein the binding reference is obtained from the  
2 connection layer.

1        25. The method of claim 20, wherein the binding reference is obtained from the  
2 call layer.

1        26. A radio access network of a telecommunications system comprising:  
2              a first radio network control node;  
3              a device situated at the first radio network control node;  
4              a second radio network control node;  
5              a base station controlled by the second radio network control node;  
6              wherein the first radio network control node uses an end-to-end signaling  
7 protocol to establish at least node-transcending ones of plural distinct connection  
8 segments comprising a radio connection involving a user equipment unit, the plural  
9 distinct connection segments extending in series between the device in the first radio  
10 network control node and the base station controlled by the second radio network  
11 control node, the first radio network control node serving as a serving radio network

12 control (SRNC) node and the second radio network control serving as a drift radio  
13 network control (DRNC) node for the radio connection with the user equipment unit.

1        27. The apparatus of claim 26, wherein the first radio network control node uses  
2 AAL2 signaling as the end-to-end signaling protocol.

1        28. The apparatus of claim 26, wherein an establish confirm message of the end-  
2 to-end protocol is not received at the first radio network control node until a user plane  
3 has been set up for all of the plural connection segments.

1        29. The apparatus of claim 26, wherein the first radio network control node  
2 establishes at least one of the plural distinct connection segments between the base  
3 station controlled by the second radio network control node and a device at the second  
4 radio network control node.

1        30. The apparatus of claim 29, wherein the first radio network control node  
2 participates in a SRNC relocation procedure to make the second radio network control  
3 node serve as the SRNC for the radio connection involving the user equipment unit, and  
4 wherein after the SRNC relocation procedure at least one of the plural distinct  
5 connection segments between the base station controlled by the second radio network  
6 control node and the device at the second radio network control node is retained to  
7 comprise the radio connection with the user equipment unit.

1        31. The apparatus of claim 30, wherein the retained one of the plural distinct  
2 connection segments is used in series with a post-relocation connection segment to  
3 establish a path between the base station controlled by the second radio network control  
4 node and a diversity handover unit at the second radio network control node.

1        32. The apparatus of claim 31, wherein an endpoint of the retained one of the  
2 plural distinct connection segments is moved to a diversity handover unit at the second  
3 radio network control node.

1        33. The apparatus of claim 30, wherein the first radio network control node  
2 establishes:

3       (1) as one of the plural distinct connection segments, a connection segment  
4 between a first device at the second radio network control node and the base station  
5 controlled by the second radio network control node;

6       (2) as another of the plural distinct connection segments, a connection segment  
7 between the first device at the second radio network control node and a second device  
8 at the second radio network control node.

1       34. The apparatus of claim 33, wherein the first radio network control node  
2 further establishes:

3       (3) as yet another of the plural distinct connection segments, a connection  
4 segment between the second device at the second radio network control node and the  
5 device at the first radio network control node.

1       35. The apparatus of claim 33, wherein the first device is a first connection  
2 point and the second device is a second connection point.

1       36. The apparatus of claim 35, wherein the first device is a first extension  
2 terminal and the second device is a second extension terminal, and wherein the  
3 connection segment of (1) extends through a switch at the second radio network control  
4 node.

1       37. The apparatus of claim 35, wherein the first radio network control node and  
2 the second radio network control node participate in a SRNC relocation procedure to  
3 make the second radio network control node serve as the SRNC for the radio  
4 connection involving the user equipment unit, and wherein after performance of the  
5 SRNC relocation procedure the connection segment established by (1) is retained to  
6 comprise the radio connection with the user equipment unit.

1       38. The apparatus of claim 37, wherein the connection segment established by  
2 (1) is utilized in series with a post-relocation connection segment to establish a path  
3 between the base station controlled by the second radio network control node and a  
4 diversity handover unit at the second radio network control node.

1       39. The apparatus of claim 26, wherein the first radio network control node  
2 establishes:

3           (A) as a retainable one of the plural distinct connection segments, a connection  
4 segment between a device at the second radio network control node and the base station  
5 controlled by the second radio network control node.

1           40. The apparatus of claim 39, wherein the first radio network control node  
2 further establishes:

3           (B) as another of the plural distinct connection segments, a connection segment  
4 between the device at the second radio network control node and the device at the first  
5 radio network control node.

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1           41. The apparatus of claim 39, wherein the device at the second radio network  
2 control node is a connection point situated between a switch of the second radio  
3 network control node and a link to the first radio network control node.

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1           42. The apparatus of claim 39, wherein the device at the second radio network  
2 control node is an extension terminal.

1  
1           43. The apparatus of claim 39, wherein the first radio network control node and  
2 the second radio network control node participate in a SRNC relocation procedure to  
3 make the second radio network control node serve as the SRNC for the radio  
4 connection involving the user equipment unit, and wherein after performance of the  
5 SRNC relocation procedure the retainable one of the connection segments established  
6 by step (A) is used to comprise the radio connection with the user equipment unit.

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1           44. The apparatus of claim 43, wherein, as part of the SRNC relocation  
2 procedure, an endpoint of the retainable one of the plural distinct connection segments  
3 is moved to a diversity handover unit at the second radio network control node.

1  
1           45. The apparatus of claim 26, wherein each of the first radio network control  
2 node, the second radio network control node, and the base station controlled by the  
3 second radio network control node each have a call control process in a call layer which  
4 is separated from a connection control process in a connection layer, and wherein at  
5 least one of the first radio network control node, the second radio network control node,  
6 and the base station controlled by the second radio network control node has an  
7 application programmable interface between the call layer and the connection layer.

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1        46. The apparatus of claim 45, wherein the second radio network control node  
2 has an application programmable interface between the call layer and the connection  
3 layer, and wherein the application programmable interface is employed by the call layer  
4 to inform the connection layer to send an establish confirm message to the first radio  
5 network control node

1        47. The apparatus of claim 26, wherein the node-transcending one of the plural  
2 distinct connection segments has a connection point at a given node, the given node  
3 being one of the first radio network control node, the second radio network control  
4 node, and the base station, wherein the given node has a call control process in a call  
5 layer which is separated from a connection control process in a connection layer, and  
6 wherein the call layer control process obtains a binding reference to represent the  
7 connection point.

1        48. The method of claim 47, wherein the binding reference is in a predetermined  
2 range which is reserved for setting up AAL2 connections to connection points.

1        49. The method of claim 48, wherein the binding reference is a Served User  
2 Generated Reference (SUGR).

1        50. The method of claim 47, wherein the binding reference is associated in a  
2 table with a predetermined value which denotes a connection point value.

1        51. The method of claim 47, wherein the binding reference is obtained from the  
2 connection layer.

1        52. The method of claim 47, wherein the binding reference is obtained from the  
2 call layer.